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Undergraduate Research Symposium

UMSL Undergraduate Works

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2016

## 2016 Program

University of Missouri-St. Louis

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# URS

Undergraduate  
Research  
Symposium

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*Research • Scholarship • Creative Works*

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2016

University of Missouri—St. Louis

## *Mission Statement*

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The members of the University of Missouri–St. Louis chapter of Golden Key International Honour Society are committed to the creation of educational opportunities and the development of leadership skills. As leaders, we are dedicated to formulating a paradigm for student activism that preserves and advances the interests and reputation of our campus and its faculty.

In 2002, Golden Key members designed the Undergraduate Research Symposium (URS) to furnish a venue for undergraduate students to present their research, scholarship, and creative works as they would at a professional conference. This multidisciplinary event is intended to help students achieve their educational and professional goals by presenting students an opportunity to refine their communication skills and network with scholars. The URS also provides an opportunity for faculty and the broader academic community to express support for the undergraduate scholars in furthering their research and graduate studies.



## What is Golden Key?

Golden Key International Honour Society is an academic honor society that recognizes and encourages scholastic achievement and excellence among college and university students from all academic disciplines. In an effort to reflect the Society's diversity and international presence, Golden Key uses the globally accepted spelling of "honour" in its name.



## **Chapter Officers 2015–2016**

Eric’el Johnson, President

Megan Smith, Vice President

Hannah Stowe, Treasurer

Aaron Kravish, Secretary

Laura Miller, SGA Representative

Meghan Littles, Social and Alumni Director

Nicholas Domescik, New Member Engagement Director

Jodi M. Heaps, PhD, Co-Advisor

Kathryn A. Walterscheid, PhD, Advisor



The mission of Golden Key:

To enable members to realize their potential by connecting  
individual achievement with service and lifelong opportunity

The values of Golden Key:

Integrity, Collaboration, Innovation, Respect,  
Diversity, Excellence, Engagement

# URS

Undergraduate Research Symposium

## **The URS Committee**

Jin Wang, URS Chair

Eric'el Johnson, Vice-Chair

Megan Smith, Editor

Jodi M. Heaps, PhD, Poster Editor

Kathryn A. Walterscheid, PhD, Faculty Director

## **URS Crew**

Shannon Geary

Nicole Gevers

Hannah Gill

Aaron Kravish

Katie Walterscheid

Melaney Walterscheid

Many URS crew members volunteered after this book went to press  
and could not be included in this list.

# Thanks to the URS Sponsors

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## *Co-Sponsors*

Sigma Xi: The Scientific Research Society

Writing Lab, Department of English

University of Missouri-St. Louis Graduate School

## Acknowledgments

The members of Golden Key would like to thank all of the dedicated administrators, faculty, and staff who have inspired and helped us. In particular, we wish to express our appreciation to the following individuals:

Jay Frey

Printing Services

Jodi M. Heaps, PhD

Assistant Research Professor, Psychology

Chris Schott

Coordinator, Writing Lab, Department of English

We would also like to thank all the mentors who supervised the research, reviewed abstracts countless times, edited posters, coached oral presenters, and were there when they were needed.

# *Table of Contents*

Anthropology .....	1
Biochemistry & Biotechnology .....	3
Biology.....	4
English .....	5
History .....	6
Humanities .....	6
Interdisciplinary .....	6
Music .....	7
Physics .....	7
Psychology.....	7
Spanish.....	10

The URS ends at 3:00 pm. Shortly thereafter,  
the awards will be presented at a brief ceremony  
in the Millennium Student Center, on the third  
floor, in Century Room C.

# Awards



The UMSL chapter of Sigma Xi, The Scientific Research Society, will present three awards for posters. Faculty judges will assess the posters on content and style, the abstracts on content and clarity, and the presenters on their interaction with the audience. These awards are made possible by Dr. Patricia Parker through her Des Lee Endowed Professorship Grant.

## Graduate School Application-Fee Waivers

# UMSL

The Graduate School is awarding application-fee waivers to URS Participants.

The URS Committee will be sending a list of URS participants to the graduate school. When you fill out the on-line graduate school application, use the statement of purpose box to indicate that you participated in the URS and are requesting a fee waiver.



# *Anthropology*



## **Studies Regarding Captive Behavior of Ring Tailed Lemurs and How Those Traits Can Be Applied in Conservation of Wild Species**

Charles Blanton, Anthropology

Mentor: Lana Kerker Oliver, MA

## **Aggressive versus Affiliative Behavior in Captive Chimpanzees (*Pan troglodytes*) Compared to Wild Conspecifics**

Daniel Blash, Psychology

Mentor: Lana Kerker Oliver, MA

## **Sacral Abnormalities in 19<sup>th</sup>-Century St. Louisans**

John Claggett, Anthropology

Mentor: Sarah Lacy, PhD

## **What Do People Know and Think About Other Religions?**

Jessica Engel, Anthropology

Mentor: Patti Wright, PhD

## **Effects of Enrichment on the Behavior of Coquerel's Sifaka (*Propithecus coquereli*) at the St. Louis Zoo**

Corey Fitzpatrick, Anthropology

Mentor: Lana Kerker Oliver, MA

**Effect of Visitor Crowd Size on Agonistic and Affiliative Behaviors  
in Two Captive Allen's Swamp Monkeys**

Benjamin Hibbett, Anthropology

Mentor: Lana Kerker Oliver, MA

**Apes, Monkeys, Prosimians: What It's Like to Be a One-Year-Old**

Nathaniel Jones, Biology

Mentor: Lana Kerker Oliver, MA

**Social Behavior of Sumatran Orangutans at the Saint Louis Zoo**

Matthew McCoy, Biology

Mentor: Lana Kerker Oliver, MA

**Social Habits of the Sumatran Orangutans (*Pongo abelii*) at the St. Louis Zoo**

Hugh McMonigle, Computer Science

Mentor: Lana Kerker Oliver, MA

**Gestural Communication in Chimpanzees**

Kara Meyer, Anthropology

Mentor: Lana Kerker Oliver, MA

**The Exotic Animal Trade in Missouri: The Legality, Cost, and Consequence**

Jacqueline Meyncke

Mentor: Sarah Lacy, PhD

**Behavioral Responses to Visitor Volume and Interaction  
by Captive Western Lowland Gorillas**

Emma Mitchell, Anthropology

Mentor: Lana Kerker Oliver, MA

**Spatial Enclosure Use by Cotton-top Tamarins at the St. Louis Zoo**

Chad Ollendick, Biology

Mentor: Lana Kerker Oliver, MA

**Age and Sex Affect Infant Transfer in Captive *Colobus guereza***

Sage Rohrer, Biology

Mentor: Lana Kerker Oliver, MA

**Redheads Wrestling at the Zoo**

Thomas Unterreiner, Anthropology

Mentor: Lana Kerker Oliver, MA

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*Biochemistry & Biotechnology*



**Potassium Efflux from *Escherichia coli* Mediated by Synthetic Ion Channels**

Evan Garrad, Biochemistry & Biotechnology

Mentor: George W. Gokel, PhD

**Characterization of Microvesicles and Their Interaction with the  
Alzheimer's Amyloid-Beta Protein**

Mudar Ismail, Biochemistry & Biotechnology

Lisa Gouwens, Chemistry & Biochemistry

Mentor: Michael R. Nichols, PhD

## **Characterization and Application of an Alzheimer's-Selective Antibody**

Victoria Rogers, Biochemistry & Biotechnology  
Benjamin Colvin, Biochemistry & Biotechnology  
Lisa Gouwens, Biochemistry & Biotechnology

Mentor: Michael R. Nichols, PhD

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## *Biology*



### **Sexual Dimorphism in Diets of Guianian Sakis (*Pithecia pithecia*) during the Wet Season on Coastal Guyana**

Lena Alsyouf, Biology

Mentor: Godfrey R. Bourne

### **The Effect of Precipitation on Parasitism Rates on Shelter-Building Caterpillars**

Hannah Franko, Biology

Mentor: Patricia Parker, PhD

### **Floral Complexity and Sampling in *Bombus impatiens***

Kathryn Janssen, Psychology

Patrica Horack, Biology

Matthew Austin, Biology

Mentor: Aimee Dunlap, PhD

### **ACA9-RFP-mPTS as a Tool to Study Peroxisomes in *Arabidopsis thaliana***

Patrick Nittler, Biology

Mentor: Bethany Zolman, PhD

**Examining Root Phenotypes Associated with Mutated At3g02550 and At1g52040 Genes to Study Auxin Roles in *Arabidopsis thaliana***

Ashley O'Neal, Biology  
Stephanie Theiss, Biology

Mentor: Bethany Zolman, PhD

**Mechanistic Characterization of an Alzheimer's Selective Antibody**

Elizabeth Ridgway, Chemistry  
Benjamin A. Colvin, Chemistry

Mentor: Michael R. Nichols, PhD

**Reverse Genetics Reveal that Peroxisomal Fatty Acid  $\beta$ -Oxidation Enzymes Have Varying Effects on Indole-3-Acetic Acid to Indole-3-Butyric Acid Conversion**

Gabrielle Rupp, Biochemistry & Biotechnology

Mentor: Bethany Zolman, PhD

**Temporal Patterns of Thoracic Temperatures in an Ectothermic Neotropical Lizard, *Tropidurus hispidus*, in the North Savannas of Guyana**

Ari Zakroff, Biology

Mentor: Godfrey R. Bourne, PhD

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*English*



**Harry Potter and the Ring Composition throughout the Series**

Meagan Fitzpatrick, English

Mentor: Ann Torrusio, MA

## *History*



### **We Have Risen: AIDS Activism in St. Louis**

Aaron Kravish, History

Mentor: Kara Moskowitz, PhD

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## *Humanities*



### **Something about Audrey: An Analysis of Audrey Hepburn's Influence on Beauty Standards and Gender**

Kourtney McKinney, Business Administration

Mentor: Ann Torrusio, MA

### **Reaching New Heights: The High Heel and its Ever-Growing Size and Influence**

Lyndsey McKinney, Marketing and International Business

Mentor: Ann Torrusio, MA

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## *Interdisciplinary*



### **Enrollment, Food Access, and UMSL's Poor**

Laura A. Miller, Philosophy

Mentors: Kathleen Nigro, PhD; Bryonie A. Carter, MA; Jill B. Delston, PhD

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# *Music*



## **Ancient Greek Music**

Alexis Lovins, Music

Mentor: Zachary Cairns, PhD

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# *Physics*



## **Composition of Oxygen-Bearing Species in Comet C/2002 T7 (LINEAR)**

Brigid Costello, Physics

Mentor: Erika Gibb, PhD

## **Partial Volatile Composition of Comet C/2002 T7 (LINEAR)**

Nicholas Moore, Physics

Mentor: Erika Gibb, PhD

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# *Psychology*



## **A Theoretical Paradigm for Testing Existence of Placebo Effect in Insects**

Daniel Blash, Psychology

Mentor: Kimberly Baldus, PhD

**Factors Associated with Perceived Wantedness and Consent  
during First Heterosexual Intercourse: A Study of Students at Three Universities**

Dasha Carver, Psychology  
Shalisha T. Morgan, Psychology  
Allison L. Kirschbaum, MA  
Kristen N. Jozkowski, PhD  
Terry P. Humphreys, PhD  
Mentor: Zoe Peterson, PhD

**The Role of Coping Strategies on Stress Response in Trauma Survivors**

Danielle Dalechek, Psychology  
Mentor: Michael G. Griffin, PhD

**Rumination is Associated with PTSD Severity, Symptom Clusters,  
and Self-Related Brain Structures**

Tasheia Floyd, Psychology  
Mentors: Carissa L. Philippi, PhD; Steven E. Bruce, PhD

**Impact of Health Literacy on Medication Management**

Kaitlin Henning, Psychology  
Mentor: Ann Steffen, PhD

**Ignorance is Bliss?: Lower Gender Stigma Consciousness  
as a Protective Factor for Women in STEM**

Noreen Heyari, Psychology  
Tiffany Ramirez Wedding, Psychology  
Courtney Dorris, Psychology  
Erin Sullivan, Psychology  
Mentors: Bettina Casad, PhD; Zach Petzel, PhD



**Zombies: The Reasons They Exist and Why We Can't Live Without Them**

Adriene Michelle Lai, Psychology

Mentor: Kimberly Baldus, PhD

**Can Being in Love Lead to Distraction from Everyday Tasks?**

Katrina Lynn, Psychology

Mentor: Sandra Langeslag, PhD

**Use of a Brain-Computer Interface during a Lucid Dream:  
Pilot Study and Future Directions**

Remington Mallett, Psychology

Mentor: Suzanne Welcome, PhD

**Effects of Threatening Environments on Cardiovascular Reactivity  
and Task Performance among Women in STEM**

Sarah Mitchell, Psychology

Richard Currie, Psychology

Lauren Kanyuck, Psychology

Evan Blechle, Psychology

Mentor: Bettina J. Casad, PhD

**Gender Equity Moderates the Relationship between Threat  
and Self-Esteem among Women in STEM**

Sarah Mitchell, Psychology

Maria Zimmerman, Psychology

Alex Stubblefield, Psychology

Amber Daly, Psychology

Chris Hodge, Psychology

Mentor: Bettina J. Casad, PhD

**Social Climate Predicts Risk-Taking: The Role of Gender Identity as a Buffer**

Danielle Oyler, Psychology  
Michael Fague, Psychology  
Drake Anderson, Psychology  
Brian Flammang, Psychology  
Mentor: Bettina J. Casad, PhD

**Examining Types of Coping with Stress in Parents of 2-Year-Olds**

Jamie Powers, Psychology  
Mentor: Emily Gerstein, PhD

**The Influence of Infatuation on Attention during Neutral Tasks**

Kruti Surti, Psychology  
David J. Robertson, Psychology  
Nilli Lavie, Psychology  
Mentor: Sandra Langeslag, PhD

**Low Dose Post Nicotine and its Reduction in Penumbra Volume**

Beth Weise, Psychology  
Tom Mauer, Psychology  
Jacob Huffman, Psychology  
Mentor: George Taylor, PhD

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*Spanish*



**Spanish Gender Assignment in the University Classroom: A Look at Participants' Characteristics that Affect the Acquisition of the Spanish Gender Feature**

Teresa Helms, Spanish  
Mentor: Ralph Cordova, PhD; Lauren Schmidt, PhD